

WHAT IS CLAIMED IS:

1. An aligner for illuminating a mask (or
reticle) with light emitted from a light source and
exposing an object to be exposed with light reflected
5 from the mask, comprising:

oxygen density detection means for detecting an
oxygen density on an optical path between the light
source and the object to be exposed;

moisture density detection means for detecting
10 a moisture density on the optical path; and

control means for controlling a light exposure
to be irradiated to the object to be exposed based on
the detection results of the oxygen density detection
means and the moisture density detection means.

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2. The aligner according to claim 1, wherein
quantity-of-light detection means is included
which detects a quantity of light at a predetermined
position on the optical path.

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3. The aligner according to claim 1, wherein
light exposure detection means is included
which detects a quantity of light irradiated to the
object to be exposed.

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4. The aligner according to claim 1, wherein
the control means controls the light exposure

in accordance with a relation between an absorbed
quantity of light emitted from the light source
(absorptance of light having a wavelength emitted
from the light source) and an oxygen density
5 (relation between absorbed quantity of light
irradiated to the object to be exposed and a certain
oxygen density).

5. The aligner according to claim 4, wherein
10 a relation between an oxygen density and an
absorptance of light emitted from the light source is
previously included as data.

6. The aligner according to claim 1, wherein
15 the control means controls the light exposure
in accordance with a relation between an absorbed
quantity of light emitted from the light source
(absorptance of light having a wavelength emitted
from the light source) and a moisture density
20 (relation between an absorbed quantity of light
irradiated to the object to be exposed and a certain
moisture density).

7. The aligner according to claim 6, wherein
25 a relation between a moisture density and an
absorbed quantity of light emitted from the light
source is previously included as data.

8. The aligner according to claim 1, wherein the light emitted from the light source is an excimer laser beam.

5 9. The aligner according to claim 8, wherein the excimer laser beam is an F₂ laser beam.

10 10. The aligner according to claim 1, wherein the control means has an ND filter and the ND filter controls a light exposure to be irradiated to the object to be exposed.

15 11. The aligner according to claim 1, wherein the control means has a diaphragm to control a light exposure to be irradiated to the object to be exposed by changing opening diameters of the diaphragm.

20 12. A device fabrication method comprising:
a step of exposing the object to be exposed by using the aligner of claim 1; and
a step of developing the exposed object.

25 13. An aligner for transferring a pattern formed on a mask or reticle to an object to be exposed comprising:
quantity-of-light detection means for detecting

a quantity of exposure light;

oxygen density detection means for detecting an oxygen density in an exposure environment;

moisture density detection means for detecting
5 a moisture density in the exposure environment; and

control means for controlling the quantity of the exposure light in accordance with data showing the relation between the oxygen density, the moisture density and the absorbed quantity of the exposure
10 light and detection results by the oxygen density detection means and the moisture detection means previously obtained.

14. A device fabrication method comprising:
15 a step exposing the object to be exposed by using the aligner of claim 13; and
a step of developing the exposed object.